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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,325	10/06/2003	Ian A. Pancham	AMAT/8024/CMP/ECP/RKK	5447

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EXAMINER

TADESSE, YEWEBDAR T

ART UNIT

PAPER NUMBER

1734

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/680,325	Applicant(s) PANCHAM ET AL.	
	Examiner Yewebdar T. Tadesse	Art Unit 1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 20-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/04/02/05&04/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-19, drawn to an apparatus for electroless deposition, classified in class 118, subclass 50+.
 - II. Claims 20-25, drawn to a method for electroless deposition, classified in class 427, subclass 304.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus could be used to perform a materially different method like flowing a cooling medium through the diffusion member.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Todd Patterson on 1/5/06 a provisional election was made with traverse to prosecute the invention of group I, claims 1-19. Affirmation of this election must be made by applicant in replying to this Office action.

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Claims 20-25 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) The invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1 and 8-10 are rejected under 35 U.S.C. 102(a) as being anticipated by Steven et al (US 2003/0118732).

With respect to claim 1, Steven et al discloses (see Figs 2, 3A; and paragraphs 30-31) a fluid processing cell, comprising: a rotatable substrate support member (212) positioned in a processing volume (202), the substrate support member comprising: a base member having a central fluid aperture formed therein (central aperture connected to port 224, see Figs 2 and 3A), and a fluid diffusion member (212) sealably positioned to the base member and defining a fluid volume (214, 314) therebetween,

the fluid diffusion member having a plurality of radially positioned bores (226 and see Figs 2 & 3A) formed therethrough, and a fluid dispensing member (222) positioned above the fluid diffusion member and being configured to dispense a processing fluid onto a substrate (210, 302) positioned on the substrate support member.

As to claim 8, in Steven et al (see Figs 2 and 3A) the fluid dispensing member (314) comprises a pivotally mounted arm having dispensing nozzle (223, 315) positioned on a distal end, the fluid arm being in fluid communication with at least one electroless solution source (228, 319).

Regarding claim 9, in Steven et al the fluid dispensing member comprises an environmental shield (204) positioned above the fluid diffusion member, the environmental shield having a substantially planar lower surface and a fluid dispensing aperture formed therein (see Figs 2 and 3A).

As to claim 10, Steven et al discloses a plurality of heating elements (heater 316, see Fig 3A and paragraph 27) positioned in communication with the diffusion member, the heating element being positioned between the radially positioned bores.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al in view of Tepman (US 5,566,744) and Wen (US 6,239,038).

Steven et al teaches (see Figs 2 & 3A and paragraphs 31-32) that a substrate support provided with fluid passages for a heated fluid in order to provide heat to the substrate. However, a fluid heater in communication with the central fluid aperture is not taught in Steven et al. Tepman discloses (see Fig 3) heated fluid supplied to the central fluid aperture (308) and Wen discloses (see Fig 2) a heater (54) capable of supplying heated fluid at a constant temperature in communication to the central aperture. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a heater in communication with the central aperture in Steven et al to supply the fluid at desired temperature.

11. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al in view of Wen (US 6,239,038).

With respect to claim 4, Steven et al lacks teaching a plurality of support fingers positioned to support a substrate above the fluid diffusion member. Yet, Wen discloses (see Fig 2) a plurality of inwardly extending substrate support fingers (42, see the slanted surface of each finger stretching internally) positioned to support a substrate (12) above the fluid diffusion member and in parallel relationship thereto. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of support fingers positioned to support a substrate above the fluid diffusion member and in parallel relationship thereto in Steven et al to lift the substrate at desired height.

As to claim 5, Steven et al lacks teaching a substrate support member comprising an annular substrate ring positioned above the fluid diffusion member wherein the support ring having an inner diameter that is less than an outer diameter of the substrate and the diffusion member. Wen discloses (see Fig 2) an annular substrate ring positioned above the fluid diffusion member the support ring having an inner diameter (see the bottom inside diameter of the finger 42) that is less than an outer diameter of the substrate and the diffusion member. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include support ring having diameter as claimed in Steven et al to properly position the substrate relative to the diffusion member of the substrate support.

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12. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al in view of Shibagaki (US 2002/0195128 A1).

Steven et al lacks teaching circular positioned rings of bores having an increasing diameter as the rings increase in distance from a central axis of the fluid diffusion member and wherein a diameter of the bores increase as a distance from the central axis increases. Shibagaki discloses (see Fig 5C) circular positioned rings of bores having an increasing diameter as the rings increase in distance from a central axis of the fluid diffusion member and wherein a diameter of the bores increase as a distance from the central axis increases. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include rings of bores and bores as claimed in Steven et al to effectively supply fluid to the bottom region of the substrate.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al as applied to claim 10 above and further in view of Carman et al (US 5,294,778).

Steven et al as modified lacks teaching individually controlled plurality of heating elements. However, it is well known in the art to individually control a plurality of heating elements of fluid diffusing member to provide different voltage of heat to the different regions of the substrate. For instance, Carman et al discloses (see Fig 3) a diffusion member substrate support having a plurality of heaters (12, 14 and 16) that are individually controlled. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include individually controlled heaters in Steven et

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al to operate the heating system at reduced voltages and inhibit arcing at the heater terminals as taught by Carman et al (see column 4, lines 40-45).

14. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al in view of Wen (US 6,239,038) and Shibagaki (US 2002/0195128 A1).

With respect to claim 12, Steven et al discloses (see Figs 2 & 3A) an electroless deposition cell, comprising: a cell body defining a processing volume (202); a rotatable substrate support member (212) positioned in a processing volume (202); a fluid diffusion member (212) having a plurality of bores (226, see Fig 3A) formed through an upper surface thereof, and a fluid dispensing member (222) positioned to dispense an electroless solution onto an upper surface of the substrate. Steven et al lacks teaching a plurality of bores being arranged in annular patterns about central axis of the fluid diffusion member and at least one substrate arm extending inwardly over the upper surface of the fluid diffusion member, the at least one substrate support arm being configured to support a substrate in parallel relation to an upper surface of the fluid diffusion member in a face up orientation. Shibagaki discloses (see Fig 5(C)) a plurality of bores being arranged in annular patterns about central axis of the fluid diffusion member and Wen discloses (see Fig 1) at least one substrate arm extending inwardly (42, see the slanted surface of each finger stretching internally) over the upper surface of the fluid diffusion member, the at least one substrate support arm being configured to support a substrate in parallel relation to an upper surface of the fluid diffusion member in a face up orientation. It would have been obvious to one of ordinary skill in the art at

the time the invention was made to include a plurality of bores being arranged in annular patterns as claimed in Steve et al to effectively supply fluid to the bottom region of the substrate. It would have also been obvious to one of ordinary skill in the art at the time the invention was made to include at least one substrate support arm as claimed to lift the substrate at desired height.

As to claim 18, Steven et al discloses (see Figs 2-3) a processing shield (204) having a substantially planar lower surface selectively positioned in parallel relationship to the fluid diffusion member.

15. Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al in view of Wen (US 6,239,038) as applied to claim 12 above and further in view of Tepman (US 5,566,744).

With respect to claims 13-16, Steven et al teaches (see Figs 2, 3A and 3B and paragraphs 31-32) that a substrate support provided with fluid passages for a heated fluid in order to provide heat to the substrate and a plurality of fluid dispensing bores in communication with the central aperture. However, a source of heated fluid or a fluid heater in communication with the plurality of fluid dispensing bores is not taught in Steven et al. Tepman discloses (see Figs 2A and 3) a heated fluid in communication with a plurality of channels (216, 316) through the central fluid aperture (214, 308) and Wen discloses (see Fig 2) a heater (54) capable of receiving a fluid at a first temperature and dispensing the fluid at a second temperature in communication in communication with plurality of bores. It would have been obvious to one of ordinary

skill in the art at the time the invention was made to include a heater in communication with the plurality of bores to supply the fluid at desired temperature.

As to claim 17, Steven et al lacks teaching a lift pin assembly positioned in the substrate support assembly. However Tepman discloses (see Fig 2B) a lift pin assembly (221) positioned in the substrate support assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a lift pin assembly in Steven et al to lift the substrate as desired.

16. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steven et al in view of Wen (US 6,239,038) as applied to claim 12 above and further in view of Carman et al (US 5,294,778).

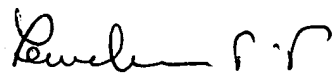
Steven et al as modified lacks teaching individually controlled plurality of heating elements. However, it is well known in the art to individually control a plurality of heating elements of fluid diffusing member to provide different voltage of heat to different regions of the substrate. For instance, Carman et al discloses (see Fig 3) a diffusion member of substrate support having a plurality of heaters (12, 14 and 16) that are individually controlled. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include individually controlled heaters in Steven et al to operate the heating system at reduced voltages and inhibit arcing at the heater terminals as taught by Carman et al (see column 4, lines 40-45).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T. Tadesse whose telephone number is (571) 272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



YTT